Digital Photograph Management Guidelines

Klamath Network
National Park Service

Version: 1.0
Status: *Final*
Update Frequency: As Needed

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Recommended Citation:

Mohren, Sean. 2007. Digital Photograph Management Guidelines. Klamath Inventory and Monitoring Network, National Park Service. pp 11.

Related Documentation and SOPs:

Mohren, Sean. 2007. Data Management Plan. Klamath Inventory and Monitoring Network, National Park Service. pp 83.

Mohren, Sean. 2007. Klamath Network Photographic Database: Users Guide. Klamath Inventory and Monitoring Network, National Park Service. pp 9.

Change History

Original Version #	Date of Revision	Revised By	Changes	Justification	New Version #
1.0	10/21/06	Sean Mohren	Completed Version 1		1.0

1. Purpose

The purpose of this document is to outline the process an individual should follow to collect and submit digital imagery for storage and dissemination by the Klamath I&M Network. Digital imagery refers to electronic images obtained using digital cameras or imagery scanners. This document:

- Identifies timeframes for submitting photographs and metadata
- Outlines the KLMN photograph check in process.
- Describes the different types of digital images the Network will store and manage.
- Defines metadata that will accompany photographs.
- Identifies a naming convention for digital images.
- Provides information on image, camera, and scanning specifications.
- Discusses ownership and rights to privacy.

2. Timeframes and Submittal Methods

2.1 Project Staff

Field crew members are expected to complete the photograph metadata for all photographs they collect following the same timeline as the field data entry process outlined in each project's planning phase. Each crew member is expected to submit all photographs and metadata to the Project Manager within two weeks of completing a field season. The Project Manager should review the pictures and metadata, remove any photographs of poor quality, and submit the photographs and metadata to the KLMN Data Manager within one month of beginning a field season unless stated otherwise.

2.2 Office Staff

Photographs collected by the KLMN office staff should be stored in one of the two following locations. Photographs associated with a project should be stored in the image folder that is contained within the project folder. Images not related to a project should be stored in the following folder.

<p align="center">G:\Library\Klamath Network Digital Library</p>

Once you place your images in their correct folder, you must contact the Network Data Manager within 5 days to inform him that images have been posted. It is the Data Manager's responsibility to incorporate the images into a temporary database and populate as much metadata as possible. The Data Manager will then contact the network employee submitting the photographs and let them know the location of the populated temporary database. It will be the submitter's responsibility to populate any remaining fields and contact the Network Data Manager upon completion within 2 weeks of being contacted by the Data Manager. At this point the Data Manager will review the metadata and incorporated the photographs into the Master Photograph Database.

3.   Image Types

There are various types of images the Network will utilize throughout many phases of our program. Listed below are the types of photographs the Network will manage.

3.1   Personal Photographs

Person photographs are images that individuals have collected for personal use and can not be associated with a specific project. Any personal photograph submitted to the Klamath Network will become the property of the Network.

3.2   Project Photographs

Starting in the spring of 2008, when the Klamath Network is immersed in natural resource monitoring, we expect to receive thousands of photographs documenting sites, habitats, species, procedures, field crews, and equipment use. Photographs collected to document project-related information will need to be submitted along with corresponding metadata at the end of each field season following the timeline stated in section 2 of this document.

3.3   Remote Sensing Imagery

Remote sensing data are currently (5/15/2007) being stored on an Oracle server where the data will be managed by the Data Manager. Naming conventions and organization of those files will be different than the information presented in this document. The Network is in the process of developing a guideline to address how an individual can access and post information on the Network GIS server and a description of the organizational structure of the Network server. When finalized, this document will be made available through the KLMN internet website.

3.4   Non-Network Images

In a rare case, the Network may be asked to store or disseminate imagery from non-network sources including NPS parks, other government agencies, non-government agencies, and regional organizations. Photographs will need to have the minimum required metadata prior to dissemination or incorporation into the KLMN Master Photograph Library.

4.   Metadata

The KLMN requires complete metadata be provided for each image. The degree of required metadata is dependent on the image type (Section 4). Metadata can be submitted to the Network Data Manager via a correctly formatted Excel spreadsheet (Appendix A) or by using the KLMN Photographic Database (Section 8).

4.1 Personal and Non-Network Photographs

Each personal and non-network photograph must be accompanied with the minimal number of attributes including:

- Photograph name.
- Detailed Description of the photograph (Include names of individuals, species that occur in the photograph, general location names, etc).
- Date the photograph was obtained.
- Location (Include park, city, or nearest commonly known location).
- Photographer.
- Sensitivity comments (Is there a reason this photo can not be distributed to the public?).

4.2 Project Photographs

Project-related photographs require additional metadata including:
- Photograph name.
- Project name.
- Detailed description of the photograph (Include names of individuals, species that occur in the photograph, general location names, site/plot/transect name or number, etc)
- Date the photograph was obtained
- Location – Include park, city, or nearest commonly known location
- Sensitivity comments (Is there a reason this photo can not be distributed to the public?).
- Easting and northing UTM location (when applicable)
- Datum (default to NAD 84 zone 10)
- Photographer
- Keyword (provided by the Network)
- Collection (default "KLMN")
- Publisher (defaults to NPS)
- Resource type (defaults to "Image")
- Rights (default to "Public Domain")

5. File Structure and Folder Name

Photographs being managed at the Network will be stored in one of three possible locations: the "Photograph" folder linked to the Master Photograph Library (G:\Library\Klamath Network Photographs Library), Project folders (e.g., G:\Inventories\ Basor_RareAquatics_2003_Images), or the Oracle/ArcSDE GIS server (GIS1). It will be the responsibility of the Data Manager to determine the final location to store any imagery submitted to the Network.

5.1 Photograph Folder

In general, the "Photographs" folder will contain all photographs (except remote sensing imagery) managed by the Network. Photographs will be divided into "Category" folders that resided in the "Photographs" folder. Each category folder is used to separate the photographs into logical groups (Figure 6.1).
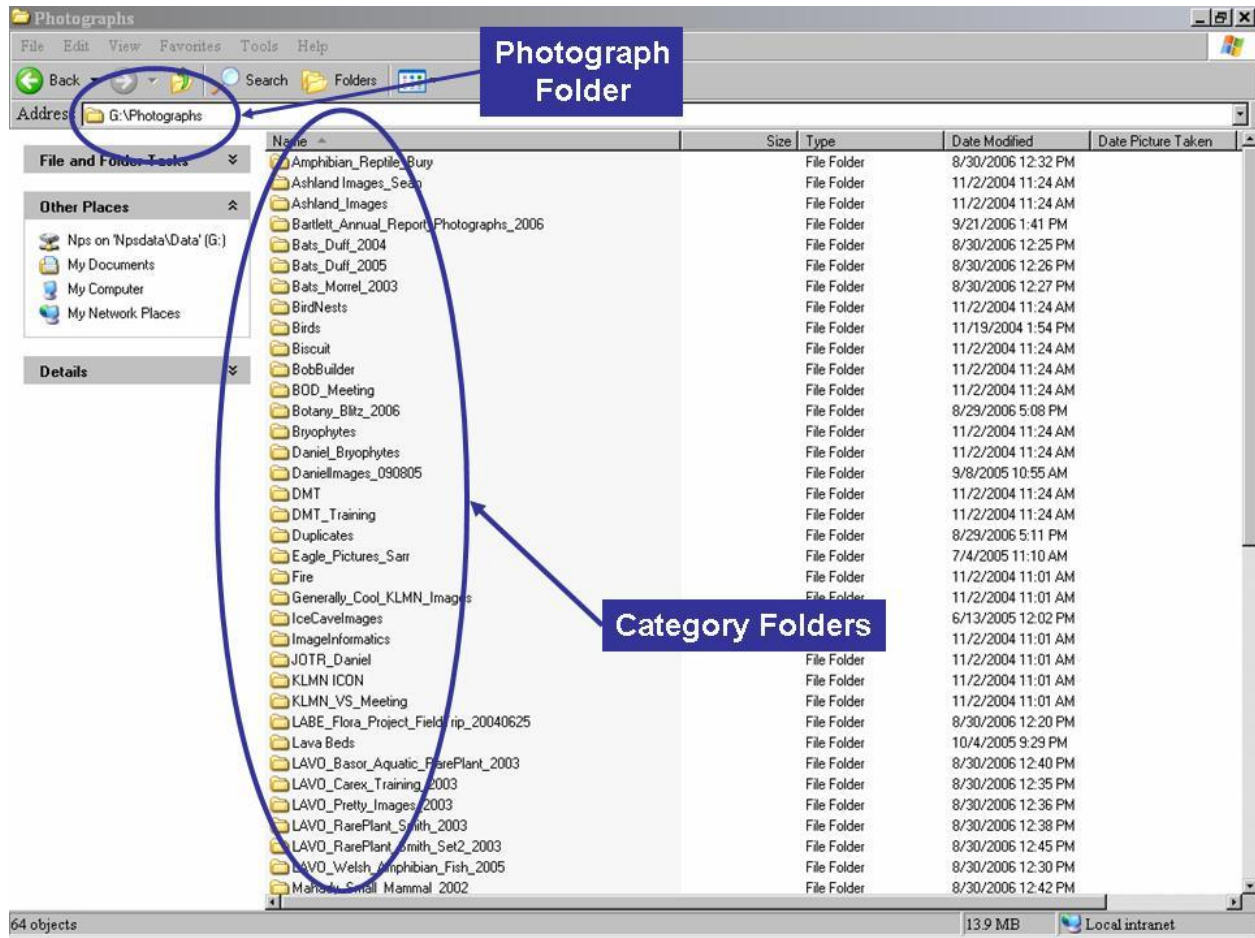
Figure 5.1. The Network Photograph folder with various category folders.

5.2 Category Folder

It is the responsibility of the individual downloading or saving an image to create and name the category folder. Naming conventions for category folders should meet the following standards.

- Contains no spaces (separate with an underscore).
- Has no special characters (&%@#*).
- Include a year in the format YYYYMMDD
- Describes the general theme of the group of photographs (e.g., Wildlife, Fire, Botanical, Vegetation_Monitoring, Field Crew, and Wellness_20050610).
- Includes the project name if applicable.

5.3 Project Folder

Inventory and Monitoring projects will have an image folder located in the project folder developed for all inventory and monitoring projects (See Folder Structure Guidelines). Within the project folder is a folder entitled "*Project Name*_Images." All photographs and photograph metadata for a specific project will be stored in this folder. It is the responsibility of the Network

Data Manager to make copies of these images and metadata and incorporate them into the "Photographs" folder that is linked to the Networks Master Photograph Database.

6. Photograph Name

Each photograph located in a "Category" folder needs to have a unique name. Photographs can have the same name as long as they are located in different category folders. It is the responsibility of the individual downloading or saving the picture to create the name of the photograph. We suggest using the naming function of the camera to automatically name the photographs. However, if naming the photograph after image development, the naming conventions should follow these parameters:

- Use mixed case in the name where the beginning of each word is capitalized.
- Start with a short description of the photograph.
- Add the date the photograph was taken in the format YYYYMMDD.
- Include a unique number starting at one and increasing incrementally for each picture, added at the end of the name.
- Separate each item using an underscore (_).

Some examples include: Orchid_20050515_1
                          Orchid_20050515_2
                          Johnsons_House_20061010_15
                          Sunset_At_CRLA_20020512_1

7. Utilizing the KLMN Photographic Database.

The Klamath Network utilizes an Access database that stores metadata linked to photographs stored in category folders (Figure 2). To obtain a copy of the database to begin organizing and creating metadata for your photographs, contact the KLMN Data Manager. For instructions on how to use the database, see the following document posted on the KLMN intranet:

  Mohren, Sean. 2006 Klamath Network Photographic Database: Users Guide. Klamath
      Network, National Park Service. pp 9. *Draft*

Figure 2. The Klamath Network Photographic Database

8. Image, Camera and Scanning Specifications

8.1 Images

When taking images, you should adhere to the following guidelines:

- The Klamath Network requires all images to be submitted in a Joint Photographic Experts Group (JPEG) format.
- Images managed by the Network will be used for a variety of objectives. Therefore, all images should be stored at as high a resolution as possible. At no time should images be taken under four megapixles unless this goes beyond the operational limits of the equipment.
- Although some cameras can imprint date and time onto an image, this is not recommended. Date and time are embedded in JPEG headers by most cameras. In addition, imprinting an image can reduce the image quality and overall value.

8.2 Cameras

The KLMN does not standardize on a specific camera type. However, most cameras have similar generalized functions that need to be checked on a regular basis. Some of these are:

- *Date and Time* – It is important to make sure the date and time are accurate on you camera prior to going into the field. The date and time are embedded in the header file of a JPEG and will be used to check the date and time reported in the metadata. A good rule of thumb is to synchronize your camera with your GPS unit.

- *Naming*- Many cameras can be set to automatically name photographs. Depending on the brand of camera, photographs can be automatically named using several methods including: sequential order starting each time a memory card is formatted, sequential order which loops from 0001 to 9999, or a date-photo sequence. The Network prefers the date-photo sequence method as the primary method to name photographs.

8.3 Scanning Specifications

The KLMN will use scanners to create electronic copies of maps, documents, photographs, and datasheets. Listed below are the minimal recommended scanning specifications for different formats. As a general rule, higher resolution scans will yield a better quality image at a larger file size.

35mm Color Slide or Negatives (Scanner should be set up to scan transparent materials – Hardware and software:
- Choose source size approx. 1.3x0.85 inches (Software should auto-detect this dimensions)
- Choose target size same as original
- Select resolution 2400 dpi, 24 bit color (do NOT use 32 or 48 bit color)
- Save as uncompressed JPEG file
- 3120x2040 pixels, file size 15-20 MB

3 ½ "x 5" color photographs
- Choose source size approx. 3.5" x 5.0"(Software should auto-detect this dimensions)
- Choose target size same as original
- For color photo, select resolution 600-700 dpi, 24 bit color (do NOT use 32 or 48 bit color)
- For black and white photographs, choose resolution 600-700 dpi, 8 bit grayscale (do NOT use 16 bit grayscale)
- Save as uncompressed JPEG file
- 3000 x 2100 pixels, file size 15-20 MB

4" x 6" color or black and white photographs
- Choose source size approx. 4.0" x 6.0"(Software should auto-detect this dimensions)
- Choose target size same as original
- For color photo, select resolution 600 dpi, 24 bit color (do NOT use 32 or 48 bit color)

- For black and white photographs, choose resolution 600 dpi, 8 bit grayscale (do NOT use 16 bit grayscale)
- Save as uncompressed JPEG file
- 3600 x 2400 pixels, file size 15-20 MB

5" x 7" color or black and white photographs
- Choose source size approx. 5.0" x 7.0"(Software should auto-detect this dimensions)
- Choose target size same as original
- For color photo, select resolution 600 dpi (450 if controls allow it), 24 bit color (do NOT use 32 or 48 bit color)
- For black and white photographs, choose resolution 600 dpi (450 if controls allow it), 8 bit grayscale (do NOT use 16 bit grayscale)
- Save as uncompressed JPEG file
- 4200 x 3000 pixels, file size 15-20 MB

8" x 10" color or black and white photographs
- Choose source size approx. 8.0" x 10.0"(Software should auto-detect this dimensions)
- Choose target size same as original
- For color photo, select resolution 300 dpi, 24 bit color (do NOT use 32 or 48 bit color)
- For black and white photographs, choose resolution 300 dpi, 8 bit grayscale (do NOT use 16 bit grayscale)
- Save as uncompressed JPEG file
- 4200 x 3000 pixels, file size 20-25 MB

8 ½" x 11" typewritten / printed paper
- Scan at resolution 300 dpi of 400 dpi if the text has very small print
- Save as uncompressed Jpeg file

9" x 9" aerial photographs
- If possible scan from diapositive transparencies rather than prints
- Scan at resolution 1200 dpi or as high as possible / feasible
- Scan with sharpness set to extreme
- Save as uncompressed JPEG file

Appendix A. Required Metadata Table for Photographs

*Park Code	*Network Code	Project	*Photo Name	*Date	*Photographer	*Description	Utm East	Utm North	Datum	*Category Folder	*Ext.	*Rights	Collection	Publisher	Resource Type
	KLMN								Nad 83 Zone 10		.jpg		KLMN	NPS	Image
	KLMN								Nad 83 Zone 10		.jpg		KLMN	NPS	Image
	KLMN								Nad 83 Zone 10		.jpg		KLMN	NPS	Image
	KLMN								Nad 83 Zone 10		.jpg		KLMN	NPS	Image

1) * Required fields.
2) Populated fields are populated with their default values.
3) Fields include:

Park Code – CRLA, LABE, LAVO, ORCA, REDW, WHIS
Network Code – KLMN
Project – Name of the project you are working on
Photo Name – Name of the photograph, do NOT include the extension
Date – Date the photograph was taken in the format MM/DD/YYYY
Description – A DETAILED description of the photograph include the name of the site if applicable
UTM East and North – The UTM coordinates where the picture was taken, if applicable
Datum – The datum and zone for the UTM coordinates. The default is Nad83 Zone 10
Category Folder – The name of the folder where the picture is being stored.
Ext. – The extension – the KLMN requires photographs to be in jpeg format
Right – Generally rights are "Public"
Publisher – Owner of the photograph, usually NPS
Resource Type – what is it? Image, PPT, Graphic – This is usually Image.